

**SYSTEM AND METHOD FOR PROVIDING
A VARIABLE BREAKDOWN BIPOLAR TRANSISTOR**

5 **ABSTRACT OF THE DISCLOSURE**

 A system and method is disclosed for providing a variable
breakdown bipolar transistor. A trench is etched in a substrate
between a first area (base/emitter area) and a second area
10 (sinker/collector area). The sinker/collector contact area and
a portion of the bottom of the trench adjacent to the
sinker/collector area are then heavily doped. The lateral distance
between the base/emitter area and the edge of the heavily doped
trench determines the breakdown voltage between the emitter and
15 collector and between the base and collector. Heat treatment
diffuses the dopant in the bottom of the trench laterally and
diffuses the dopant in the sinker/collector area downward until the
two areas are joined to form a unified sinker/collector structure.